



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

117

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,150	10/21/2003	Thomas Hecht	1406/174	9155

25297 7590 01/10/2005

JENKINS & WILSON, PA  
3100 TOWER BLVD  
SUITE 1400  
DURHAM, NC 27707

EXAMINER

LE, DUNG ANH

ART UNIT PAPER NUMBER

2818

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/692,150

Applicant(s)

HECHT ET AL.

Examiner

DUNG A LE

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9 and 10 is/are rejected.
- 7) ☒ Claim(s) 6-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/21/2003.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

D6

## DETAILED ACTION

### **Priority**

Acknowledge is made of applicants' claim for foreign priority base on an application 10121132.5 filed in Germany on 4/3/2001.

### ***Oath/Declaration***

The oath/declaration filed on 10/21/2003 is acceptable.

### ***Information Disclosure Statement***

This office acknowledges of the following items from the Applicant:

Information Disclosure Statement (IDS) filed on 11/21/03 and made of record .

The references cited on the PTOL 1449 form have been considered.

### ***Specification***

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

**Claim Rejections**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-5 and 9-10 are rejected under 35 USC 102 (b) as being anticipated by Gates et al. (6203613)**

Gates et al. teaches a method for production of a metallic or metal-containing layer using a precursor on a silicon- or germanium-containing layer (col 8, line 14) of, in particular, an electronic component, in which an intermediate layer (col 8, lines 10- 15) is applied to the silicon- or germanium-containing layer before the precursor is used, said intermediate layer forming a diffusion barrier (col 3, lines 25 and 63; col 4, line 31) at least for the elements of the precursor which would etch the silicon- or germanium-containing layer and itself being etching-resistant relative to the precursor, wherein the intermediate layer is applied with a thickness of a few atomic layers in an ALD method (col 8, line 23).

**Regarding claim 2**, wherein a dielectric is used as the intermediate layer (col 8, line 13).

**Regarding claim 3**, wherein an Al, Ta, Hf, Ti or Zr oxide is used as the dielectric. (col 8, line 13).

**Regarding claim 4**, wherein a thermostable intermediate layer is used. (col 8, lines 23 and 40)

**Regarding claim 5**, wherein the intermediate layer is stabilized in a thermal step. (col 8, lines 23 and 40).

**Regarding claim 9**, an electronic component comprising a silicon- or germanium-containing layer and a metallic or metal-containing layer fabricated on the silicon- or germanium-containing layer by the method as claimed. (col 8, lines 10-19)

**Regarding claim 10**, wherein the metallic or metal-containing layer is situated above, below or on both sides of the intermediate layer.(col 8, lines 10- 15; lines 62- 67; col 10, lines 25- 35).

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 6 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Gates et al. in view of Marsh (6800521).**

Gates et al. teaches the claimed invention as applied to claim 1, except for wherein the intermediate layer is used which enables a diffusion in the context of a subsequent silicide process serving for production of the metallic or metal-containing layer.

Marsh discloses the intermediate layer is used which enables a diffusion in the context of a subsequent silicide process serving for production of the metallic or metal-containing layer as cited in column 2, lines 28-33.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the intermediate layer is used which enables a diffusion in the context of a subsequent silicide process serving for production of the metallic or metal-containing layer in Gates 's method, in order to reduce /eliminate the diffusion or migration of the metal in to contacted regions.

*Reasons for Indication of Allowable Subject Matter*

**Claims 7 and 8 are objected to** as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Gates et al. (6203613) and Marsh (6800521), taken individually or in combination, do not teach the claimed invention having **(Regarding claim 7)** wherein, after the silicide process has been carried out, the metallic or metal-containing layer lying above the intermediate layer and, if appropriate, also the intermediate layer are/is removed in particular by etching which is selective with respect to the intermediate layer and **(Regarding claim 8)** wherein a thermally unstable layer is used, which decomposes in a subsequent, if appropriate further thermal step, in particular in the context of a subsequent silicide process serving for production of the metallic or metal-containing layer.

If Applicants are aware of better art than that which has been cited, they are required to call such to attention of the examiner.

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is (571) 272-1784. The examiner can normally be reached on Monday-Tuesday and Thursday 6:00am- 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you




Application/Control Number: 10/692,150

Page 8

Art Unit: 2818

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DUNG A. LE   
Primary Examiner  
Art Unit 2818